

# ***4.X Data Access Layer***

**COP TWG**  
***6 June 2000***

# ***Data Access Layer***

- DAL Requirements
  - The Data Access Layer will isolate segment developers and external systems from changes to data schema and data business rules of the ISDS databases.
  - The Data Access Layer will be developed such that changes to data schema and data business rules will not require changes to segments and external systems.

# ***Data Access Layer***

- DAL Goals
  - Provide the GCCS-I<sup>3</sup> and GCCS-M developer communities with an extensible set of distributed C4I objects
  - C4I domain objects will make access easier to more complicated database entities such as MIDB

# ***Data Access Layer***

## ***Key Engineering Decisions***

- TopLink Object/Relational Mapping Tool
  - Object mappings to non-object-based persistent stores
  - 100% Pure Java
  - No run-time licensing fees
  - Version available which provides a mapping to EJB
  - Support for Intel/NT and SPARC/Solaris systems
  - Object/Relational Mapping support for Tie Table-type joins
  - Object caching for increased performance
- Provide a Query Object

# ***Data Access Layer***

## ***Key Engineering Decisions***

### ***(Cont'd)***

- Schema change isolation
  - I3DAL interfaces unchanged by RDBMS changes
- Query on any predefined attributes in an object
- Utilize EJB Server Transaction service
  - Atomic writes of objects to database
  - Consistent data
  - Isolation
  - Durable

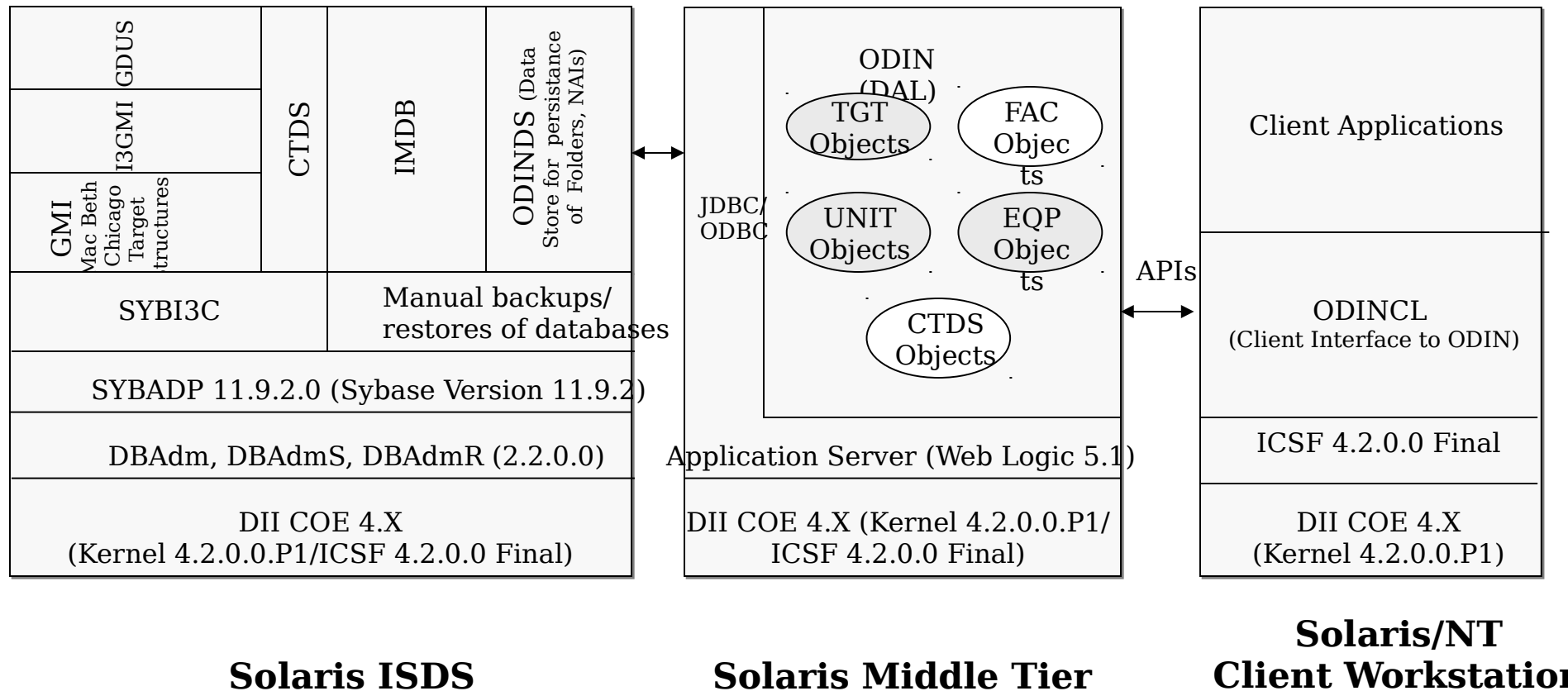
# ***Data Access Layer***

## ***Key Engineering Decisions***

### ***(Cont'd)***

- Applicable to multiple architectures
  - Enterprise Java Beans
    - » Session Beans
    - » Entity Beans
  - CORBA
  - Application server
- One object at a time
  - Multiple client references to a single object
- Caching of Objects
  - Fast access to frequently used objects

# 4.X Build 3 Architecture



# ***Data Access Layer Client Access***

- How do external systems begin using the DAL?
  - Software Developer's Kit (SDK)
    - » API Reference Manual
      - Will specify segments needed
    - » **JAVA Doc**
    - » Sample Source that uses DAL objects
  - Future ways to access
    - » HTML/JSP, Servlets



# ***Example Code To Use The DALQuery Enterprise Java Bean***

```
Context ctx = getInitialContext();
DALQueryHome queryhome =
    (DALQueryHome) ctx.lookup("i3.intel.query.DALQ
If (queryhome != null) {
    //xmlstring = getXMLString();
    //this string must follow the dalquery.dtd
    DALQuery query = queryhome.create();
    Collection results = query.execute(xmlstring);
}
```

# ***Data Access Layer Schedule***

- SDK Deliveries
  - 3/3/00
  - 4/24/00 (Build 3)
  - 7/10/00 (Build 3.1)
  - 9/5/00 (Build 4)